Hurricane Survival Guide

Your Pathway to Preparedness

45th Space Wing
Readiness and Emergency Management Flight
Patrick Air Force Base, Florida

2009 SEASON

This guide is designed to assist military and civilian personnel and their families to be prepared in the event a hurricane were to strike Patrick AFB. This guide is applicable to Patrick Air Force Base military and civilian employees and their families residing either on or off base and includes all personnel assigned, attached, or associated to Patrick AFB. For additional information, contact the 45th Space Wing Readiness and Emergency Management Flight at 494-4224 or DSN 854-4224.

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INTRODUCTION

There are no other storms like hurricanes on earth. Born in warm tropical waters, these spiraling masses require a complex combination of atmospheric processes to grow, mature, and then die. Views of hurricanes from satellites (Figure 1.1.) located thousands of miles above the earth show how unique these powerful, tightly coiled weather systems are.

Each year on average, ten tropical storms (of which six become hurricanes) develop over the Atlantic Ocean, Caribbean Sea, or Gulf of Mexico. Many of these remain over the ocean. However, about five hurricanes strike the United States coastline every 3 years. Of these five, two will be major hurricanes (category 3 or greater on the Saffir-Simpson Hurricane Scale).

Today, hurricane damage costs billions of dollars. Damage from Hurricane Andrew (1992) alone was estimated at more than $25 billion in South Florida and Louisiana and undoubtedly would have been higher had the storm hit Miami directly. Hurricane Katrina (2005) is estimated to have been responsible for $81.2 billion in damage, making it the costliest natural disaster in U.S. history.

Thankfully, the number of people injured or killed during tropical cyclones in the United States has been declining, largely because of improvements in forecasting and emergency preparedness. Nonetheless, our risk from hurricanes is increasing. With population and development continuing to increase along coastal areas, greater numbers of people and property are vulnerable to hurricane threat. Large numbers of tourists also favor coastal locations, adding greatly to the problems of emergency managers and local decision-makers during a hurricane threat.

Hurricanes cannot be controlled, but our vulnerability can be reduced through preparedness. Local decision-makers must make difficult choices between public safety and possible economic losses when faced with a hurricane, but these decisions will be solid if they are based on an understanding of hurricanes, their hazards, the value and limitations of forecasts, and a good decision-making process.

Areas at Risk

Coastal Areas and Barrier Islands
All Atlantic and Gulf coastal areas are subject to hurricanes or tropical storms. Due to the limited number of evacuation routes, barrier islands are especially vulnerable to hurricanes. People on barrier islands and in vulnerable coastal areas may be asked by local officials to evacuate well in advance of a hurricane landfall. If you are asked to evacuate, do so immediately!

Inland Areas
Hurricanes affect inland areas with high winds, floods, and tornadoes. Listen carefully to local authorities to determine what threats you can expect and take the necessary precautions to protect yourself, your family, and your property.

The United States Hurricane Problem

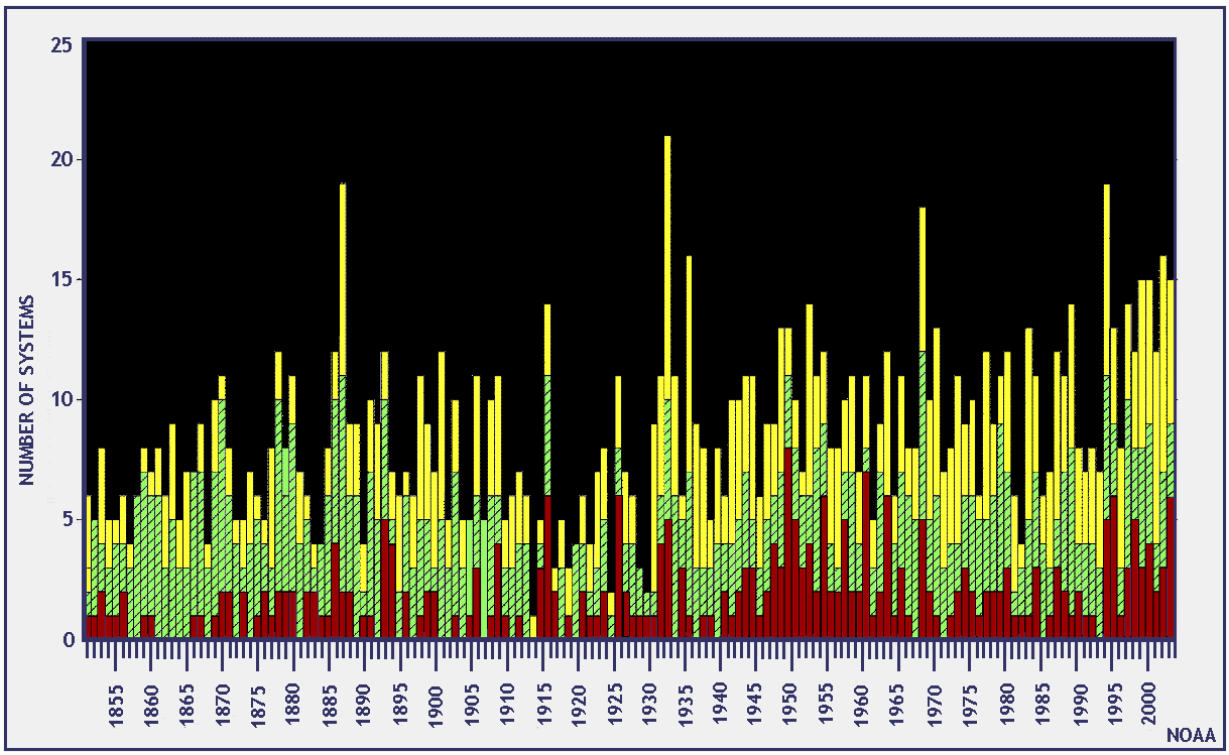
Population Growth
The United States has a significant hurricane problem. Our shorelines attract large numbers of people. In 2003, approximately 153 million people (53 percent of the nation's population) lived in the 673 U.S. coastal counties, an increase of 33 million people since 1980. By the year 2009, coastal county population is expected to increase by approximately 7 million. From Maine to Texas, our coastline is filled with new homes, condominium towers, and cities built on sand waiting for the next storm to threaten its residents and their dreams. In addition to the permanent residents, the holiday, weekend, and vacation populations swell in some coastal areas 10 to 100 fold. Almost one quarter of the nation's seasonal homes are found in the coastal areas of Florida. A large portion of the coastal areas with high population densities are subject to the inundation from the hurricane's storm surge that historically has caused the greatest loss of life and extreme property damage.

Perception of Risk

Over the past several years, the warning system has provided adequate time for people on the barrier islands and the immediate coastline to move inland when hurricanes have threatened. However, it is becoming more difficult to evacuate people from the barrier islands and other coastal areas because roads have not kept pace with the rapid population growth. The problem is further compounded by the fact that 80 to 90 percent of the population now living in hurricane-prone areas has never experienced the core of a major hurricane. Many of these people have been through weaker storms. The result is a false impression of a hurricane's damage potential. This often leads to complacency and delayed response actions resulting in the loss of lives.

Frequency of Hurricanes

During the 70s and 80s, major hurricanes striking the United States were less frequent than the previous three decades. With the tremendous increase in population along the high-risk areas of our shorelines, we may not fare as well in the future. This will be especially true as hurricane activity continues to return to the frequencies experienced during the 40s through the 60s. In the final analysis, the only real defense against hurricanes is a highly informed, tremendously prepared community.



Hurricane Cycles

Chapter 1 - HURRICANE BASICS

The ingredients for a hurricane include a pre-existing weather disturbance, warm tropical oceans, moisture, and relatively light winds aloft. If the right conditions persist long enough, they can combine to produce the violent winds, incredible waves, torrential rains, and floods we associate with this phenomenon.

Hurricane Ivan, 2004

Each year, an average of ten tropical storms develops over the Atlantic Ocean, Caribbean Sea, and Gulf of Mexico. Many of these remain over the ocean and never impact the U.S. coastline. Six of these storms become hurricanes each year.

In an average 3-year period, roughly five hurricanes strike the US coastline, killing approximately 50 to 100 people anywhere from Texas to Maine. Of these, two are typically **"major"** or **"intense"** hurricanes (a category 3 or higher storm on the Saffir-Simpson Hurricane Scale).

What is a Hurricane?

A hurricane is a type of tropical cyclone, which is a generic term for a low pressure system that generally forms in the tropics. The cyclone is accompanied by thunderstorms and, in the Northern Hemisphere, a counterclockwise circulation of winds near the earth's surface. Tropical cyclones are classified as follows:

Tropical Depression
An organized system of clouds and thunderstorms with a defined surface circulation and maximum sustained winds* of 38 mph (33 kt**) or less.

Tropical Storm
An organized system of strong thunderstorms with a defined surface circulation and maximum sustained winds of 39-73 mph (34-63 kt).

Hurricane
An intense tropical weather system of strong thunderstorms with a well-defined surface circulation and maximum sustained winds of 74 mph (64 kt) or higher.

*** Sustained winds** A 1-minute average wind measured at about 33 ft (10 meters) above the surface.

**** 1 knot** = 1 nautical mile per hour or 1.15 statute miles per hour. Abbreviated as "kt".

Hurricanes are categorized according to the strength of their winds using the Saffir-Simpson Hurricane Scale. A Category 1 storm has the lowest wind speeds, while a Category 5 hurricane has the strongest. **These are relative terms, because lower category storms can sometimes inflict greater damage than higher category storms, depending on where they strike and the particular hazards they bring.** In fact, tropical storms can also produce significant damage and loss of life, mainly due to flooding.

Saffir/Simpson Hurricane Scale [Simpson, R.H. (1974)].

Scale Number (Category)	Central Pressure (Millibars)	Central Pressure (Inches)	Winds (Mph)	Surge (Feet)	Damage
1	>979	>28.91	74-95	4 to 5	Minimal
2	965-979	28.50-28.91	96-110	6 to 8	Moderate
3	945-964	27.91-28.47	111-130	9 to 12	Extensive
4	920-944	27.17-27.88	131-155	13 to 18	Extreme
5	< 920	< 27.17	> 155	> 18	Catastrophic

Hurricane Names

When winds reach 39 mph (34 kts), the cyclones are given names. Years ago, an international committee developed names for Atlantic cyclones. In 1979 a six year rotating list of Atlantic storm names was adopted — alternating between male and female hurricane names. Storm names are used to facilitate geographic referencing, for warning services, for legal issues, and to reduce confusion when two or more tropical cyclones occur at the same time.

Through a vote of the World Meteorological Organization Region IV Subcommittee, Atlantic cyclone names are retired usually when hurricanes result in substantial damage or death or for other special circumstances. The names assigned for the period between 2009 and 2011 are shown below.

Hurricane Elena, 1985

2009	**2010**	**2011**	**2012**
Ana	Alex	Arlene	Alberto
Bill	Bonnie	Bret	Beryl
Claudette	Colin	Cindy	Chris
Danny	Danielle	Don	Debby
Erika	Earl	Emily	Ernesto
Fred	Fiona	Franklin	Florence
Grace	Gaston	Gert	Gordon
Henri	Hermine	Harvey	Helene
Ida	Igor	Irene	Isaac
Joaquin	Julia	Jose	Joyce
Kate	Karl	Katia	Kirk
Larry	Lisa	Lee	Leslie
Mindy	Matthew	Maria	Michael
Nicholas	Nicole	Nate	Nadine
Odette	Otto	Ophelia	Oscar
Peter	Paula	Philippe	Patty
Rose	Richard	Rina	Rafael
Sam	Shary	Sean	Sandy
Teresa	Tomas	Tammy	Tony
Victor	Virginie	Vince	Valerie
Wanda	Walter	Whitney	William

Basic Hurricane Safety Actions

- Know if you live in an evacuation area. Know your home's vulnerability to **storm surge**, **flooding** and **wind**. Have a written plan based on this knowledge.
- At the beginning of hurricane season (June 1st), check the supplies for your disaster supply kit, replace batteries and use food stocks on a rotating basis.
- During hurricane season, monitor the tropics.
- Monitor NOAA Weather Radio. It is an excellent / official source for real-time weather information and warnings.
- If a storm threatens, heed the advice from local authorities. **Evacuate if ordered**.
- Execute your family plan.

Eyewall of Hurricane Isabel, 2003

Watch vs. Warning

- A **HURRICANE WATCH** issued for your part of the coast indicates the possibility that you could experience hurricane conditions within 36 hours.
  This watch should trigger your family's disaster plan, and protective measures should be initiated, especially those actions that require extra time such as securing a boat, leaving a barrier island, etc.
- A **HURRICANE WARNING** issued for your part of the coast indicates that sustained winds of at least 74 mph are expected within 24 hours or less.
  Once this warning has been issued, your family should be in the process of completing protective actions and deciding the safest location to be during the storm.

Hurricane Conditions (HURCONs)

The prerequisite for any preparatory and survival situation is a positive means of relaying warning or disaster information. HURCONS is the tool Patrick AFB uses to ensure pre-disaster information is passed and are disseminated throughout the base. These conditions give sufficient preparation time to safeguard personnel, aircraft, equipment, and facilities. Expected arrival times shown are strictly estimates. Hurricanes are known for their erratic weather patterns and can change speed and course very quickly.

HURRICANE CONDITIONS (HURCONS)	
HURCON IV	**Destructive winds of 50 knots (58 mph) or greater are possible within 72 hours.**
HURCON III	**Destructive winds of 50 knots (58 mph) or greater are possible within 48 hours.**
HURCON II	**Destructive winds of 50 knots (58 mph) or greater are possible within 24 hours.**
HURCON I	**Destructive winds of 50 knots (58 mph) or greater are possible within 12 hours.**
RECOVERY CONDITIONS (RECONS)	
RECON I	Only personnel allowed back to PAFB will be personnel assigned to the Hurricane Recovery Team (approx 150 personnel) and the 45 SW Senior Leadership. Personnel will be issued RECON I Pass.
RECON II	Only personnel allow back to PAFB will be personnel who have been designated as mission essential by their commander and have been issued a RECON II Pass.
RECON III	This Condition concentrates on restoring functions and services that support the mission and people. Personnel allowed back to PAFB will still have to have a RECON III Pass.
RECON IV	This condition concentrates on base beautification, debris removal, and morale functions. RECON IV does not require a RECON Pass and anyone normally allowed access to PAFB will be permitted to return

Many people do not realize the threat of hurricanes, as each one is different. Over the past several years, U.S. hurricane warning systems have provided adequate time for people on barrier islands and the immediate coastline to move inland when hurricanes threaten. However, due to rapid population growth, it is becoming more difficult to evacuate people from the barrier islands and other coastal areas because roads have not kept pace with the expansion. The problem is further compounded by the fact that 80 to 90 percent of the populations now living in hurricane-prone areas have never experienced the core of a "major" hurricane. Many of these people have been through weaker storms. The result is a false impression of a hurricane's damage potential. This often leads to complacency and delayed actions, which could result in the loss of many lives.

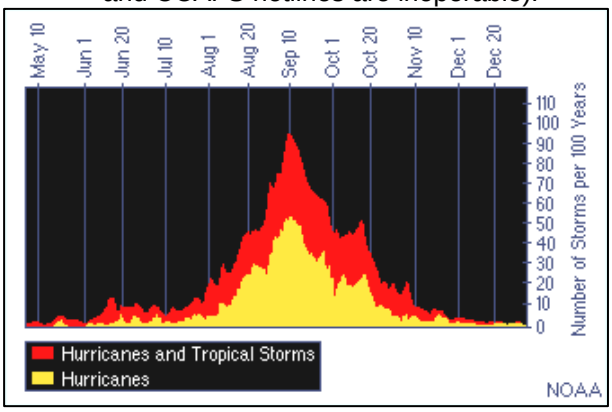
Follow instructions given by proper authorities

These instructions will be given over the local radio and television stations. Police and emergency management officers will be patrolling off-base areas. People on base will be given instructions through the following means:

- Pyramid Notification System
- Global E-mail
- Commanders Channel/Shark Vision (Channel 99)
- Rumor Control Line (494-9100)
- Special briefings
- Patrick Marquee
- Base Paper - Missileer
- Base Public Address System
- Patrolling Security Police vehicles
- Patrick Evacuation Hotline – (1-800-470-7232)
- CCAFS Evacuation Hotline – (1-800-861-7900)
- AFPC Evacuation Information Hotline – Randolph AFB Personnel Readiness Branch (1-800-435-9941). (To be used when PAFB and CCAFS hotlines are inoperable).

Hurricane Season

The official hurricane season for the Atlantic Basin (the Atlantic Ocean, the Caribbean Sea, and the Gulf of Mexico) is from 1 June to 30 November. As seen in the graph to the right. **The peak of the season is mid-August through late October**. However, deadly hurricanes can occur anytime in the hurricane season.

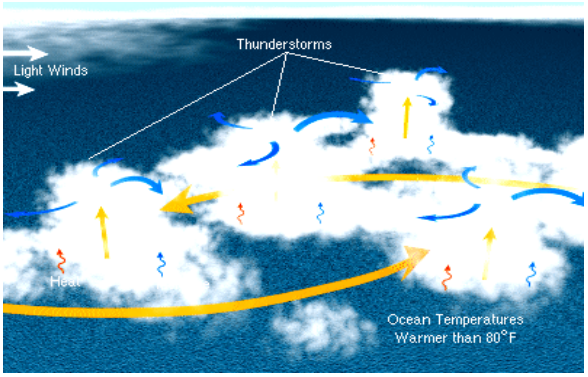


Hurricane Season Graph

Origin and Life Cycle

The Birth of a Tropical Cyclone

Tropical cyclones form over warm waters from pre-existing disturbances. These disturbances typically emerge every three or four days from the coast of Africa as "tropical waves" that consist of areas of unsettled weather. Tropical cyclones can also form from the trailing ends of cold fronts and occasionally from upper-level lows. The process by which a tropical cyclone forms and subsequently strengthens into a hurricane depends on at least three conditions shown at right.

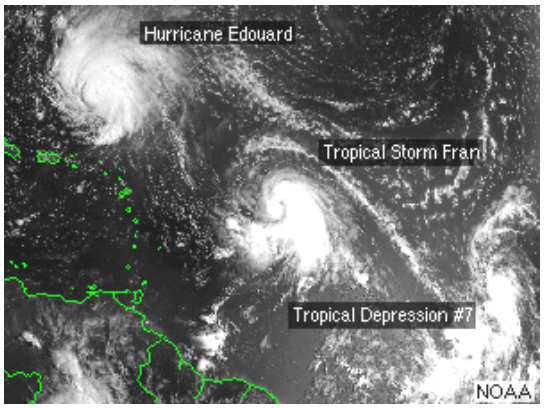


Tropical Cyclone Process

- A pre-existing disturbance with thunderstorms.
- Warm (at least 80° F) ocean temperatures to a depth of about 150 feet.
- Light upper level winds that do not change much in direction and speed throughout the depth of the atmosphere (low wind shear).

Growth and Maturity

In these early stages, the system appears on the satellite image as a relatively unorganized cluster of thunderstorms. If weather and ocean conditions continue to be favorable, the system can strengthen and become a tropical depression (winds less than 38 mph or 33 knots). At this point, the storm begins to take on the familiar spiral appearance due to the flow of the winds and the rotation of the earth (**Figure 2.3.**). If the storm continues to strengthen to tropical storm status (winds 39 - 73 mph, 34 - 63 knots), the bands of thunderstorms contribute additional heat and moisture to



Hurricane Growth and Maturity

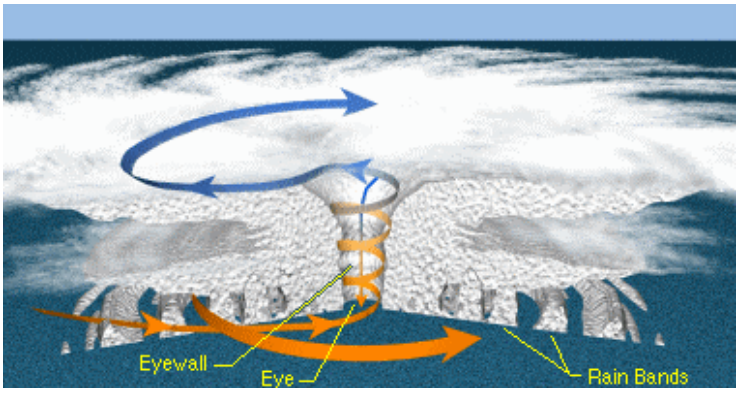
the storm. The storm becomes a hurricane when winds reach a minimum of 74 mph (64 knots). At this time, the cloud-free hurricane eye typically forms because rapidly sinking air at the center dries and warms the area. The center, or eye, of a hurricane is relatively calm. The most violent activity takes place in the area immediately around the eye, called the eyewall. During their life span, hurricanes can last for more than two weeks over the ocean and can travel up the entire Atlantic Coast.

The Storm's End

Just as many factors contribute to the birth of a hurricane, there are many reasons why a hurricane begins to decay. Wind shear can tear the hurricane apart. Moving over cooler water or drier areas can lead to weakening as well. Landfall typically shuts off the hurricane's main moisture source, and the surface circulation can be reduced by friction when it passes over land. Generally, a weakening hurricane or tropical cyclone can re-intensify if it moves into a more favorable region or interacts with mid-latitude frontal systems.

Hurricane Structure

Contrary to how many weather maps appear, a hurricane is more than a point on a weather map, and its path is more than a line. It is a large system that can affect a wide area, requiring that precautions be taken far from where the eye is predicted to come ashore. This section talks about the different parts of the hurricane and will help you better understand hurricane hazards. The main parts of a hurricane are the rainbands on its outer edges, the eye, and the eyewall. Air spirals in toward the center in a counter-clockwise pattern, and out the top in the opposite direction. In the very center of the storm, air sinks, forming the cloud-free eye.



Hurricane Structure

The Eye

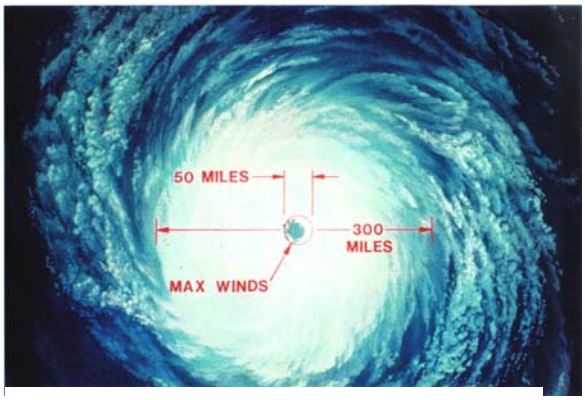
The hurricane's center is a relatively calm, clear area usually 20-40 miles across. People in the midst of a hurricane are often amazed at how the incredibly fierce winds and rain can suddenly stop and the sky clear when the eye comes over them. Then, just as quickly, the winds and rain begin again, but this time from the opposite direction.

The Eyewall

The dense wall of thunderstorms surrounding the eye has the strongest winds within the storm. Changes in the structure of the eye and eyewall can cause changes in the wind speed, which is an indicator of the storm's intensity. The eye can grow or shrink in size, and double (concentric) eyewalls can form.

The Spiral Rainbands

The storm's outer rainbands (often with hurricane or tropical storm-force winds) can extend a few hundred miles from the center. These dense bands of thunderstorms, which spiral slowly counterclockwise, range in width from a few miles to tens of miles and are 50 to 300 miles long.



Hurricane Size

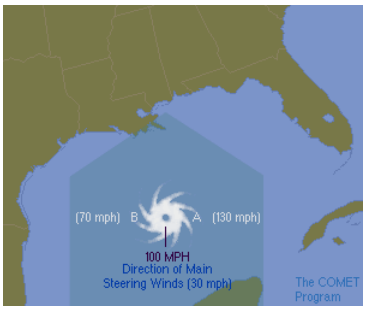
Hurricane Size

Typical hurricanes are about 300 miles wide although they can vary considerably. Size is not necessarily an indication of hurricane intensity. Hurricane Andrew (1992), one of the most devastating hurricanes of the past century, was a relatively small hurricane. Do not focus on the

location and track of the center, because the hurricane's destructive winds and rains cover a wide swath. Hurricane-force winds can extend outward to about 25 miles from the storm center of a small hurricane and to more than 150 miles for a large one. The area over which tropical storm-force winds occur is even greater, ranging as far out as almost 300 miles from the eye of a large hurricane.

Hurricane Circulation and Movement

In the Northern Hemisphere, hurricane winds circulate around the center in a counter-clockwise fashion. This means that the wind direction at your location depends on where the hurricane's eye is. A hurricane's speed and path depends on complex interactions between the storm with its own internal circulation's and the earth's atmosphere. The air in which the hurricane is embedded is a constantly moving and changing "river" of air. Other features in that flow, such as high and low pressure systems, can greatly alter the speed and the path of the hurricane. In turn, it can modify the environment around the storm. Typically, a hurricane's forward speed averages around 15-20 mph. However, some hurricanes stall, often causing devastatingly heavy rain. Others can accelerate to more than 60 mph. Some hurricanes follow a fairly straight course, while others loop and wobble along the path. These seemingly erratic changes are difficult to forecast.



The Right Side

The Right Side of the Storm

As a general rule of thumb, the hurricane's leading, right edge (relative to the direction it is traveling) is the most dangerous part of the storm because of the additive effect of the hurricane wind speed and speed of the larger atmospheric flow (the steering winds). The increased winds on the right side increase the storm surge. Tornadoes are also more common here.

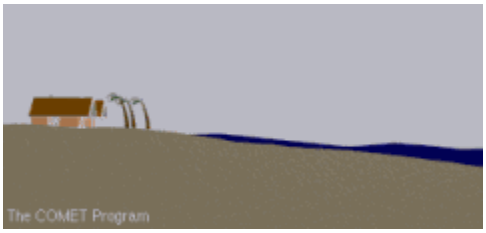
Hurricane Hazards

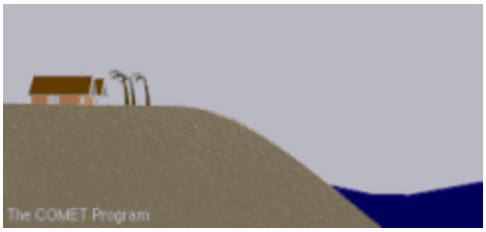
The main hazards associated with tropical cyclones and especially hurricanes are storm surge, high winds, heavy rain, and flooding, as well as tornadoes. The intensity of a hurricane is an indicator of damage potential. However, impacts are a function of where and when the storm strikes.

Storm Surge

Storm surge is simply water that is pushed toward the shore by the force of the winds swirling around the storm. This advancing surge combines with the normal tides to create the hurricane storm tide, which can increase the mean water level 15 feet or more. In addition, wind driven waves are superimposed on the storm tide. This rise in water level can cause severe flooding in coastal areas, particularly when the storm tide coincides with the normal high tides. Because much of the United States' densely populated Atlantic and Gulf Coast coastlines lie less than 10 feet above mean sea level, the danger from storm tides is tremendous.

The level of surge in a particular area is also determined by the slope of the continental shelf. A shallow slope off the coast (right, top picture) will allow a greater surge to inundate coastal communities. Communities with a steeper continental shelf (right, bottom picture) will not see as much surge inundation, although large breaking waves can still present major problems. Storm tides, waves, and currents in confined harbors severely damage ships, marinas, and pleasure boats.





In general, the more intense the storm, and the closer a community is to the right-front quadrant, the larger the area that must be evacuated. The problem is always the uncertainty about how intense the storm will be when it finally makes landfall. Emergency managers and local officials balance that uncertainty with the human and economic risks to their community. This is why a rule of thumb for emergency managers is to plan for a storm one category higher than what is forecast. This is a reasonable precaution to help minimize the loss of life from hurricanes.

Wave and current action associated with the tide also causes extensive damage. Water weighs approximately 1,700 pounds per cubic yard; extended pounding by frequent waves can demolish any structure not specifically designed to withstand such forces.

The currents created by the tide combine with the action of the waves to severely erode beaches and coastal highways. Many buildings withstand hurricane force winds until their foundations, undermined by erosion, are weakened and fail.

In estuaries and bayous, intrusions of salt water endanger the public health and send animals, such as snakes, to flee from flooded areas and take refuge in urban areas.
One tool used to evaluate the threat from storm surge is the Sea, Lake, and Overland Surges from Hurricanes (SLOSH) model. SLOSH is a computerized model run by the National Weather Service to estimate storm surge heights resulting from historical, hypothetical, or predicted hurricanes. The model creates its estimates by assessing the pressure, size, forward speed, track, and wind data from a storm. Graphical output from the model displays color-coded storm surge heights for a particular area. The calculations are applied to a specific locale's shoreline, incorporating the unique bay and river configurations, water depths, bridges, roads, and other physical features.

The SLOSH model is generally accurate within 20 percent. For example, if the model calculates a peak 10-foot storm surge for the hurricane, you can expect the observed peak to range from 8 to 12 feet. The model accounts for astronomical tides (which can add significantly to the water height) by specifying an initial tide level, but does not include rainfall amounts, riverflow, or wind-driven waves. However, this information is combined with the model results in the final analysis of at-risk areas. The point of a hurricane's landfall is crucial to determining which areas will be inundated by the storm surge. Where the hurricane forecast track is inaccurate, SLOSH model results will be inaccurate. The SLOSH model, therefore, is best used for defining the potential maximum surge for a location. For more information on storm surge and the SLOSH model, visit the National Hurricane Center website: **http://www.nhc.noaa.gov/HAW2/english/surge/slosh.shtml**.

Storm Surge Safety Actions

- Minimize the distance you must travel to reach a safe location; the further you drive the higher the likelihood of encountering traffic congestion and other problems on the roadways.
- Select the nearest possible evacuation destination, preferably within your local area, and map out your route. Do not get on the road without a planned route, or a place to go.
- Choose the home of the closest friend or relative outside a designated evacuation zone and discuss your plan with them before hurricane season.
- You may also choose a hotel/motel outside of the vulnerable area.
- If neither of these options is available, consider the closest possible public shelter, preferably within your local area.
- Use the evacuation routes designated by authorities and, if possible, become familiar with your route by driving it before an evacuation order is issued.

- Contact your local emergency management office to register or get information regarding anyone in your household whom may require special assistance in order to evacuate.
- Prepare a separate pet plan; most public shelters do not accept pets.
- Prepare your home prior to leaving by boarding up doors and windows, securing or moving indoors all yard objects, and turning off all utilities.
- Before leaving, fill your car with gas and withdraw extra money from the ATM.
- Take all prescription medicines and special medical items, such as glasses and diapers.
- If your family evacuation plan includes an RV, boat or trailer, leave early. Do not wait until the evacuation order or exodus is well underway to start your trip.
- If you live in an evacuation zone and are ordered to evacuate by state or local officials, do so as quickly as possible. Do not wait or delay your departure, to do so will only increase your chances of being stuck in traffic, or even worse, not being able to get out at all.
- Expect traffic congestion and delays during evacuations. Expect and plan for significantly longer travel times than normal to reach your family's intended destination.
- Stay tuned to a local radio or television station and listen carefully for any advisories or specific instructions from local officials. Monitor your NOAA Weather Radio.

High Winds

The intensity of a landfalling hurricane is expressed in terms of categories that relate wind speeds and potential damage. According to the Saffir-Simpson Hurricane Scale, a Category 1 hurricane has lighter winds compared to storms in higher categories. **A Category 4 hurricane** would have winds between 131 and 155 mph and, on the average, would usually be expected to **cause 100 times the damage of the Category 1 storm.** Depending on circumstances, less intense storms may still be strong enough to produce damage, particularly in areas that have not prepared in advance.

Hurricane Force Winds

Tropical storm-force winds are strong enough to be dangerous to those caught in them. For this reason, emergency managers plan on having their evacuations complete and their personnel sheltered **before the onset of tropical storm-force winds**, not hurricane-force winds.

Hurricane-force winds can easily destroy poorly constructed buildings and mobile homes. Debris such as signs, roofing material, and small items left outside become flying missiles in hurricanes. Extensive damage to trees, towers, water and underground utility lines (from uprooted trees), and fallen poles cause considerable disruption.

High-rise buildings are also vulnerable to hurricane-force winds, particularly at the higher levels since wind speed tends to increase with height. Recent research suggests you should stay below the tenth floor, but still above any floors at risk for flooding. It is not uncommon for high-rise buildings to suffer a great deal of damage due to windows being blown out. Consequently, the areas around these buildings can be very dangerous.

Windows falling from a high-rise building

The strongest winds usually occur in the right side of the eyewall of the hurricane. Wind speed usually decreases significantly within 12 hours after landfall. Nonetheless, **winds can stay above hurricane strength well inland.** Hurricane Hugo (1989), for example, battered Charlotte, North Carolina (which is 175 miles inland) with gusts to nearly 100 mph.

High Wind Safety Actions - *Before Hurricane Season*

- Protect all windows by installing commercial shutters or preparing 5/8 inch plywood panels. See the 'Secure Your Home' section of Chapter 2 for more information on shutters. Also check out NOAA's tutorial, 'Plywood Hurricane Shutter Instructions': http://www.aoml.noaa.gov/hrd/shutters/index2.html
- Garage doors are frequently the first feature in a home to fail. Reinforce all garage doors so that they are able to withstand high winds.
- If you do not live in an evacuation zone or a mobile home, designate an interior room with no windows or external doors as a "Safe Room".
- Before hurricane season, prepare your property for high winds.
    - Make a list of loose items such as lawn furniture, outdoor decorations or ornaments, trash cans, hanging plants, etc. to bring inside in the event of a storm. A list will help you remember anything that can be broken or picked up by strong winds. Hurricane winds, often in excess of 100 miles per hour, can turn unanchored items into deadly missiles, causing damage or injury when they hit.
    - Keep trees and shrubbery trimmed. Make trees more wind resistant by removing diseased or damaged limbs then strategically remove branches so that wind can blow through. Certain trees and bushes are vulnerable to high winds and any dead tree near a home is a hazard.
    - Remove any debris from your yard. Debris collection services may not be operating just before a storm, so it is best to do this well in advance of approaching storms.
    - Clear loose and clogged rain gutters and downspouts. Hurricanes often bring long periods of heavy rain. Providing clear drainage will help prevent misdirected flooding.
    - Secure building by closing and boarding up each window of your home.
    - Moor boat securely or move it to a designated safe place. Use rope or chain to secure boat to trailer. Use tie-downs to anchor trailer to the ground or house.

High Wind Safety Actions - *As a Hurricane Approaches*

- Most mobile/manufactured homes are not built to withstand hurricane force winds. Residents of homes not meeting that level of safety should relocate to a nearby safer structure once local officials issue a hurricane evacuation order for their community.
- Once a hurricane warning is issued, install your window shutters or plywood panels.
- Secure or bring inside all lawn furniture and other outside objects that could become projectiles.
- Listen carefully for safety instructions from local officials, and go to your designated "Safe Room" when directed to do so.
- Monitor NOAA Weather Radio.
- Do not leave your "Safe Room" until directed to do so by local officials, even if it appears that the winds calmed. Remember that there is little to no wind in the eye of a hurricane.

Tornadoes

Hurricanes can also produce tornadoes that add to the storm's destructive power. Tornadoes are most likely to occur in the **leading, right edge** of the hurricane. However, they are also often found elsewhere **embedded in the rainbands**, well away from the center of the hurricane.

Some hurricanes seem to produce no tornadoes, while others develop multiple ones. Studies have shown that more than half of the landfalling hurricanes produce at least one tornado; Hurricane Buelah (1967) spawned 141 according to one study. In general, tornadoes associated with hurricanes are less intense than those that occur in the Great Plains (see the **Enhanced Fujita Scale** below). Nonetheless, the effects of tornadoes, added to the larger area of hurricane-force winds, can produce substantial damage.

We have no way at present to predict exactly which storms will spawn tornadoes or where they will touch down. The new Doppler radar systems have greatly improved the forecaster's warning capability, but the technology usually provides lead times from only a few minutes up to about 30 minutes. Consequently, **preparedness is critical**.

Tornado Facts

- When associated with hurricanes, tornadoes are not usually accompanied by hail or a lot of lightning, clues that citizens in other parts of the country watch for.
- Tornado production can occur for days after landfall when the tropical cyclone remnants maintain an identifiable low pressure circulation.
- They can also develop at any time of the day or night during landfall. However, by 12 hours after landfall, tornadoes tend to occur mainly during daytime hours.

Enhanced Fujita Scale

Enhanced Fujita Rating	Enhanced Fujita 3-second gust Wind speed (mph)	Intensity Phrase	Damage
EF 0	65-85	Gale tornado	Light: Some chimney damage, broken tree branches, damaged sign boards.
EF 1	86-109	Moderate tornado	Moderate: Mobile homes moved or overturned, roofing stripped off houses, moving autos pushed off roads.
EF 2	110-137	Significant tornado	Considerable: Mobile homes demolished; roofs torn from frame houses; large trees snapped or uprooted.
EF 3	138-167	Severe tornado	Severe: Roofs and most outer walls torn off even well-built houses; trains overturned.
EF 4	168-199	Devastating tornado	Devastating: All houses leveled and some are blown some distance from their foundations; autos thrown through the air.
EF 5	over 200	Incredible tornado	Incredible: Houses picked up and carried considerable distance in pieces, automobiles fly through the air farther than 100 yards; pavement removed from highways.

Inland Flooding

"In the 1970s, '80s, and '90s, inland flooding was responsible for more than half of the deaths associated with tropical cyclones in the United States."

Ed Rappaport
National Hurricane Center

Consider the following:
When it comes to hurricanes, wind speeds do not tell the whole story. Hurricanes produce storm surges, tornadoes, and often the most deadly of all - inland flooding.

While storm surge is always a potential threat, more people have died from inland flooding from 1970 up to 2000. Intense rainfall is not directly related to the wind speed of tropical cyclones. In fact, some of the greatest rainfall amounts occur from weaker storms that drift slowly or stall over an area.

Inland flooding can be a major threat to communities hundreds of miles from the coast as intense rain falls from these huge tropical air masses.

Tropical Storm Allison Flooding, 2001

Tropical Storm Allison (2001) produced extremely heavy rainfall and catastrophic floods in the Houston, Texas area. Allison then acquired subtropical characteristics and continued to produce heavy rainfall and flooding near its track from Louisiana eastward to North Carolina, and then northward along the U.S. east coast to Massachusetts. Forty-one deaths were directly related to the heavy rain, flooding, tornadoes, and high surf. Damage estimates reported by FEMA were near $5 billion, with approximately $4.8 billion in the Houston metropolitan area alone

Hurricane Floyd (1999) brought intense rains and record flooding to the Eastern U.S. Of the 56 people who perished, 50 drowned due to inland flooding.

At least 23% of U.S. tropical cyclone deaths occur to people who drown in, or attempting to abandon, their cars.

78% of children killed by tropical cyclones drowned in freshwater floods.
So, the next time you hear hurricane -- think inland flooding!

What can you do?

- When you hear hurricane, think inland flooding.
- Determine whether you live in a potential flood zone.
- If advised to evacuate, do so immediately.
- Keep abreast of road conditions through the news media.
- Move to a safe area before access is cut off by flood water.
- Do not attempt to cross flowing water. As little as six inches of water may cause you to lose control of your vehicle.
- Develop a flood emergency action plan.
- Have flood insurance. Flood damage is not usually covered by homeowners insurance. Do not make assumptions. Check your policy.

Torrential Rains and Flooding

The National Flood Insurance Program is a pre-disaster flood mitigation and insurance protection program. The National Flood Insurance Program makes federally backed flood insurance available to residents and business owners. To contact the National Flood Insurance Program call **1-888-CALL-FLOOD ext. 445**, **TDD# 1-800-427-5593**.

Chapter 2 - HURRICANE PREPAREDNESS

Throughout this guide, information has been provided regarding actions that you can take based on specific hurricane hazards. The most important thing that you can do is to be informed and prepared. Disaster prevention includes both being prepared as well as reducing potential damage (mitigation).

Disaster Prevention should include:

- Developing a Family Plan
- Creating a Disaster Supply Kit
- Having a Place to Go
- Securing your Home
- Having a Pet Plan

One of the most important decisions you will have to make is **"Should I Evacuate?"**

If you are asked to evacuate, you should do so without delay. But unless you live in a coastal or low-lying area, an area that floods frequently, or in manufactured housing, it is unlikely that emergency managers will ask you to evacuate. That means that it is important for you and your family to **HAVE A PLAN** that makes you as safe as possible in your home.

Your unit Emergency Management (EM) representative can provide you with a copy of the 45 Space Wing Comprehensive Emergency Management Plan 10-2. Appendix 6 to Annex B of this plan details hurricane operations for the installation. Downtown, your local emergency management office or local chapter of the American Red Cross should be able to provide you with details of this plan. This plan should include information on the safest evacuation routes, nearby shelters, advice on when schools would be closed and what conditions are necessary for recommended evacuation of certain areas.

Disaster prevention includes modifying your home to strengthen it against storms so that you can be as safe as possible. It also includes having the supplies on hand to weather the storm. The suggestions provided here are only guides. You should use common sense in your disaster prevention.

Family Disaster Plan

The threat of hurricanes requires that everyone be prepared to respond. Hurricanes can force you to evacuate your neighborhood or confine you to your home. What would you do if basic services, such as water, gas, electricity, or telephones were cut off? Local officials and relief workers will be on the scene after a disaster, but they cannot reach everyone right away. Families can and do cope with disaster by preparing in advance and working together as a team. Planning ahead is your best protection and your responsibility. Ask your unit EM representative for a copy of the Family Disaster Planning Guide to use as a template for your Family Disaster Plan. You can also find this guide on Patrick AFB homepage or request a copy from the Airman & Family Readiness Center @ 494-5675. This template guide includes information for developing a Family Disaster Plan, a Disaster Supplies Kit, and a Pet Plan.

Disaster Supplies Kit

After a disaster, local officials and relief workers will be on the scene, but they cannot reach everyone immediately. You could get help in hours, or it may take days. Basic services, such as electricity, gas, water, and telephones, may be cut off, or you may have to evacuate at a moment's notice. You probably won't have time to shop or search for the supplies you'll need. Your family will cope best by preparing for disaster before it strikes.

Have A Place To Go

Develop a family disaster plan before an actual storm threatens your area.
If your family disaster plan includes evacuation to a safer location for any of reason, then it is important to consider the following points:

If ordered to evacuate, do not wait or delay your departure.
Once an evacuation order is given, leave as soon as possible (if possible, in daylight). Follow the steps pre-identified in your family disaster plan. Even a slight delay in starting your evacuation will result in significantly longer travel times as traffic congestion worsens. Evacuation will probably take longer than expected. Give yourself plenty of time.

Select an evacuation destination that is nearest to your home, preferably in the same county, or at least minimize the distance over which you must travel in order to reach your intended shelter location.
In choosing your destination, keep in mind that the hotels and other sheltering options in most inland metropolitan areas are likely to be filled very quickly in a large, multi-county hurricane evacuation event.

If you decide to evacuate to another county or region, be prepared to wait in traffic.
The large number of people in this state who must evacuate during a hurricane will probably cause massive delays and major congestion along most designated evacuation routes; the larger the storm, the greater the probability of traffic jams and extended travel times.
If possible, make arrangements to stay with the friend or relative who resides closest to your home and who will not have to evacuate. Discuss with your intended host the details of your family evacuation plan well before the beginning of the hurricane season.

If a hotel or motel is your final intended destination during an evacuation, make reservations before you leave.
Most hotel and motels will fill quickly once evacuations begin. The longer you wait to make reservations, even if an official evacuation order has not been issued for your area or county, the less likely you are to find hotel/motel room vacancies, especially along interstate highways and in major metropolitan areas.

If you are unable to stay with friends or family and no hotels/motels rooms are available, then as a last resort go to a shelter.
Remember, shelters are not designed for comfort and do not usually accept pets. Bring your disaster supply kit with you to the shelter.

Make sure that you fill up your car with gas, before you leave.

Secure Your Home

There are things that you can do to make your home more secure and able to withstand stronger storms.

Retrofitting Your Home
The most important precaution you can take to reduce damage to your home and property is to protect the areas where wind can enter. According to recent wind technology research, it's important to strengthen the exterior of your house so wind and debris do not tear large openings in it. You can do this by protecting and reinforcing these five critical areas: ROOF, STRAPS, SHUTTERS, DOORS, and GARAGE DOORS

A great time to start securing - or retrofitting - your house is when you are making other improvements or adding an addition.

Remember: building codes reflect the lessons experts have learned from past catastrophes. Contact the local building code official to find out what requirements are necessary for your home improvement projects.

Roof Retrofitting

Gabled Roofs
Does your home have a gabled roof? If so, the end wall of your home takes a tremendous beating during a hurricane. If not properly braced, it can collapse, causing significant damage. However, *gable end walls* are easy to strengthen and deserve to be a high priority on your *retrofit* list.

Typically, gable end trusses are directly attached to the top of *gable end walls*. The bottom of the truss must be securely nailed to the top of the wall and braced to adjacent trusses. This prevents wind from pushing or pulling the gable end at its critical point, where the gable truss is connected along the gable wall. Without adequate bracing, the end wall may be destroyed during hurricane winds.

To secure your gable end wall, fasten eight-foot long braces to the bottom chord of the gable truss and the adjacent trusses with sixteen-penny (16d) nails. The braces should be perpendicular to the truss, spaced at a maximum of four feet on center. In addition, be sure to tie back the gable truss with at least one eight-foot long brace, along the ridge of the roof, to several of the interior trusses.

Shingles
Shingles are usually not designed to resist hurricane force winds. They come with integral locking tabs or factory-applied adhesives that on occasion do not adhere properly to the underlying shingle because of cold weather installation, uneven surfaces or any number of other reasons.

For increased wind resistance, have a qualified person inspect several shingle tabs to see if the adhesive has engaged. If not, use a quick-setting asphalt cement to bond them together.

To cement the shingle tabs to the underlying shingles, place two spots of quick-setting asphalt cement about the size of a quarter under each tab with a putty knife or caulking gun. Press the tab into the adhesive. Be sure to cement all the tabs throughout the roof, being careful not to bend them farther than necessary when applying the adhesive. Replace any damaged shingles immediately.

Attach Roof Sheathing with Adhesive

You can also improve the uplift resistance of the roof deck from the attic -- without removing the roof covering. This is how:

- Using a caulking gun, apply a 1/4 inch bead of wood adhesive along the intersection of the roof deck and the roof support element (rafter or truss chord) on both sides.
- At places where you have limited access, such as where the roof meets exterior walls, use quarter round pieces of wood approximately two to three feet long and apply the adhesive along the two adjacent sides of the block. The length of the quarter round pieces can be longer or shorter to suit your installation needs.
- Press the wood pieces in the intersection making sure the adhesive has made solid contact with the sheathing and roof support elements.

According to static pressure tests, using the wood adhesive can increase the wind uplift resistance of the plywood roof sheathing by as much as three times the conventional method of securing the sheathing with nails. It should be available at your local hardware and building supply stores. Please ask your local hardware expert if other products are available that could provide the same strength and properties as a wood adhesive.

Hurricane Straps

Roof to Top of Wall Connection

Metal hurricane straps or clips provide the proper measure of strength and safety for the roof-to-wall connection. The common practice of toenailing the trusses or rafters often is not sufficient to hold a roof in place in high winds. These clips or straps are usually very difficult to see from the attic because of insulation.

hurricane strap

Areas where the roof framing meets the top of stud walls are normally covered by dry wall on the inside and by wall cladding and soffit board on the outside. To install *hurricane straps and clips*, remove the roof *sheathing* around the perimeter of the roof to reveal the top of the wall. You may also need to remove the soffit and exterior cladding to reveal the top 12 to 18 inches of the wall. In addition, if the exterior cladding is brick veneer, you may need to remove small sections of brick as needed.

If your roof has trusses, make sure you tie them to the wall by either anchoring to the top plate and then the top plate to the wall stud, or strapping the truss directly to the wall stud.

Shutters

One way to protect a home from damage in wind storms is to install *impact-resistant shutters* over all large windows and glass doors. Not only do they protect doors and windows from wind-borne objects, but they can reduce damage caused by sudden pressure changes when a window or door is broken. *Laminated window systems* (plastic bonded to glass) are another option, and are a particularly good choice for either building a new home or adding to an old one.

The easiest designs are those that simply cover the opening with a structural panel such as plywood. **In past hurricanes, many homeowners upon returning have noticed their temporary plywood shutters blown off because they were not adequately fastened.** If you have a wood-frame house, use adequate fasteners to attach the panels over the openings when a hurricane approaches. Have these temporary shutters stored and ready to use since building supply stores generally sell out of these materials quickly during a hurricane warning. If your home is made with concrete blocks, however, you will have to install anchoring devices well in advance.

Manufactured Shutters

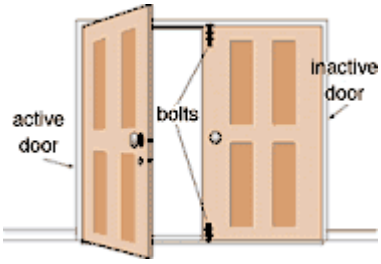
If your residence has permanent shutters, evaluate their effectiveness. Manufacturers are responsible for testing their shutters up to the standards necessary to resist wind forces and wind-borne debris. Some shutters are very flexible, especially those that roll up.

If struck by a rigid piece of debris, shutters may bend and break the window. To determine whether your shutter can resist this impact, gently lean against it and see if it yields. You can also inspect your shutters to see if they are properly attached to the house and will not fly off during a storm by inspecting the shutter connectors for obvious excessive wear or missing connectors. Ask the shutter manufacturer for proper installation criteria.

Impact-Resistant Windows

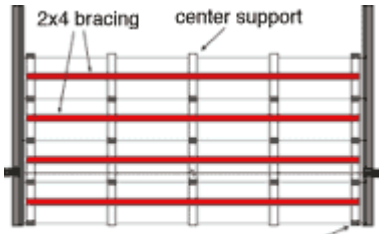
Another way to protect your home from damage in windstorms is through the installation of impact-resistant windows and doors. Although these products look no different than standard windows and doors, they offer significantly more protection from wind-borne debris. In fact, these systems are capable of resisting impacts from large objects. For this reason, temporary shutters do not need to be installed before a storm strikes. In general, the frame and glazing work together to protect your home from both the elements and the significant internal pressure changes which lead to structural damage. While large wind-borne debris may crack the impact resistant glass during the course of the storm, the window is designed to retain its integrity and not break apart. Should either the frame or glass be damaged, it can be repaired at your convenience after the storm has passed.

Securing Entry Doors



- Your home has either double or single entry doors. If they are solid wood or hollow metal they probably can resist wind pressures and hurricane debris. However, if you are not sure whether they are strong enough, take these precautions:
- Install head and foot bolts on the inactive door of double-entry doors. **(Shown here)**
- Make sure your doors have at least three hinges and a dead bolt security lock which has a minimum one inch bolt throw length.
- Since double entry doors fail when their surface bolts break at the header trim or threshold, check the connections at both places. Be sure the surface bolt extends into the door header and through the threshold into the subfloor.

Bracing Garage Doors



garage door bracing

Because of their width, double-wide garage doors are more susceptible to wind damage than single doors. Unless you have a roller tested hurricane-resistant door, the wind may force it out of the track -- especially if the track is light weight or some of the anchor bolts are not in place. This occurs because the door deflects too much under excessive wind pressure and fails.

To secure your garage door:

- Check with your local government building official to see if there are code requirements for garage doors in your area.
- Check with your local building supplier or garage door retailer to see if a retrofit kit is available for your garage door.

You should probably reinforce your double-wide garage door at its weakest points. This involves installing horizontal and/or vertical bracing onto each panel, using wood or light gauge metal girds bolted to the door mullions. You may also need heavier hinges and stronger end and vertical supports for your door.

If you decide to retrofit your garage door with a kit that allows you to operate the door after it is installed, make sure the door is balanced by lowering it about halfway and letting go. If the door goes up or down, the springs will need adjusting. *Note: Since the springs are dangerous, only a professional should adjust them.*

If you are unable to retrofit your garage door with a kit specifically designed for your door, you can purchase garage door retrofit kits to withstand hurricane winds at your local building supply store. Also, check to see if the supplier can do the installation.

Flood Insurance

The National Flood Insurance Program is a pre-disaster flood mitigation and insurance protection program designed to reduce the escalating cost of disasters. The National Flood Insurance Program makes federally backed flood insurance available to residents and business owners.

Flood damage is not usually covered by homeowners insurance. Do not make assumptions. Check your policy. National Flood Insurance Program call **1-888-CALL-FLOOD ext. 445**, **TDD# 1-800-427-5593**.

Chapter 3 – RESPONDING TO A HURRICANE

What to Do During a Hurricane WATCH.

- Continue listening regularly to a NOAA Weather Radio or local radio or television stations for updated information. Hurricanes can change direction, intensity, and speed very suddenly. What was a minor threat several hours ago can quickly escalate to a major threat.
- The sudden increase in intensity, and "hard right turn" made Hurricane Charley (2004) difficult to forecast accurately. Originally forecast to pass along Florida's West coast and cause minimal damage, Charley devastated Punta Gorda and neighboring Port Charlotte resulting in ten deaths and nearly $15 billion in damages.
- Fill your car's gas tank early. If advised to evacuate, you may have to travel long distances or be caught in traffic, idling for long periods of time. Gas stations along the route may be closed.
- Turn refrigerator and freezer to coldest setting. In the event of a power failure, open only when absolutely necessary and close quickly. Keeping the coldest air in will help perishables last longer.
- Turn off utilities if told to do so by authorities. Authorities may ask you to turn off water or electric utilities to prevent damage to your home or within the community. Most of the time they will tell you to leave the gas on because a professional is required to turn your gas back on.
- Turn off propane tanks. Propane tanks may be damaged or dislodged by strong winds or water. Turning them off reduces the fire potential if they are damaged by the storm.
- Unplug small appliances. Small appliances may be affected by electrical power surges that may occur as the storm approaches. Unplugging them reduces potential damage.
- Review evacuation plan. Make sure your planned route is the same as the currently recommended route. Sometimes roads may be closed or blocked, requiring a different route.
- Stay away from floodwaters. If you come upon a flooded road, turn around and go another way. When you are caught on a flooded road and waters are rising rapidly around you, if you can do so safely, get out of your vehicle and climb to higher ground.

What to Do During a Hurricane WARNING.

- Listen to a NOAA Weather Radio, or portable, battery-powered radio or television for updated information and official instructions. Hurricanes can change direction, intensity, and speed very suddenly. Continue listening for local information.
- If officials announce a hurricane warning, they may ask you to leave your home as soon as possible to be safe. Take your Disaster Supplies Kit and go to a shelter or evacuation location. Local officials advise leaving only if they truly believe your location is in danger.
- If you are not advised to evacuate, stay indoors, on the first floor away from windows, skylights and glass doors, even if they are covered. Stay on the floor least likely to be affected by strong winds and floodwaters. A small interior room without windows on the first floor is usually the safest place. Have as many walls between you and the outside winds as possible. Lie on the floor under a table or other sturdy object. Being under a sturdy object will offer greater protection from falling objects.
- Close all interior doors. Secure and brace external doors. Closed doors will help prevent damaging hurricane winds from entering additional rooms.
- Have a supply of flashlights and extra batteries handy. Avoid using open flames (candles and kerosene lamps) as a source of light. Flashlights provide the safest emergency lighting source.
- If power is lost, turn off major appliances to reduce the power "surge" when electricity is restored. When electricity is restored, the surge from many major appliances starting at the same time may cause damage or destroy the appliances.
- If in a mobile home, check tie-downs and evacuate immediately. Historically, manufactured homes suffer the greatest amount of damage during hurricanes. Prior to 1994, most manufactured homes were not designed to withstand even moderate winds.
- Be aware that the calm "eye" is deceptive; the storm is not over. The worst part of the storm will happen once the eye passes over and the wind blows from the opposite direction. Trees, shrubs, buildings, and other objects damaged by the first winds can be broken or destroyed by the second

winds. The opposing winds begin suddenly, and have surprised and injured many people who ventured out during the eye.

- Be alert for tornadoes. Tornadoes can happen during and after a hurricane passes over. Remain indoors on a lower level, in the center of your home, in a closet or bathroom without windows.

Evacuation

Evacuation

The 45 SW Commander and subordinate commanders will ensure that all personnel evacuate from Patrick AFB if they are in the forecast track of the storm.

Wing personnel are encouraged to stay with friends, family members, or in hotels located outside the predicted flooding areas. The 45th Space Wing has identified the Space Coast Junior/Senior High School as an evacuation site for Active Duty personnel and their families that have no other evacuation options. All other personnel are encouraged to use local county shelter.

Once the storm has moved to within 24 hours of the forecast arrival of 50 knot (58 MPH) winds the 45 SW Commander will direct the evacuation of base personnel, including housing residents. Residents of military family housing, the unaccompanied dormitories, and billeting must be evacuated either to Space Coast Junior/Senior High School or other inland safe haven locations.

Military personnel and families residing in base housing that require transportation will report to the on-base assembly areas for formation and evacuation to Space Coast Junior/Senior High School. Upon declaration of the evacuation order, buses will be dispatched to evacuation assembly areas.

Personnel requiring transportation will report to the following locations:

- Personnel residing in billeting, transient quarters, dormitories and DEOMI students will report to the parking lot across from building 720 (Billeting Office), corner of Falcon and Atlas Avenues.
- Personnel residing in North Base Housing will report to the intersection of Hopi and Riverside Trail (next to the playground).
- Personnel residing in Central Base Housing will report to the Base Education Center (Bldg. 998).
- Personnel residing in Pelican Coast Housing will report to Youth Center/Chapel 2 parking lot (Bldg. 3655 and 3659).

Special Needs

The Brevard County Special Needs Program is a space-limited program for which people with specific health and medical conditions can register, providing sheltering and transportation with the resources available in Brevard County.

The Special Needs Registry is a confidential listing of those people who meet program criteria, and is updated on an annual basis. Patients with colonoscopies, nebulizers, oxygen, feeding tubes, or Alzheimer's disease are eligible for the registry.

While the Brevard County Office of Emergency Management recommends sheltering with friends or family members, public shelters are available for those who do not have other alternatives.

Individuals who elect to use a Special Needs or other public shelter should bring with them items such as cots, bedding, medicine, medical supplies, and food supplies, preparing to be self-sufficient for 72 hours. Special Needs registrants should also be accompanied by at least one caregiver.

Most shelters are located in public schools, and offer neither privacy nor luxuries. Occupants' comfort will be determined by their preparedness.

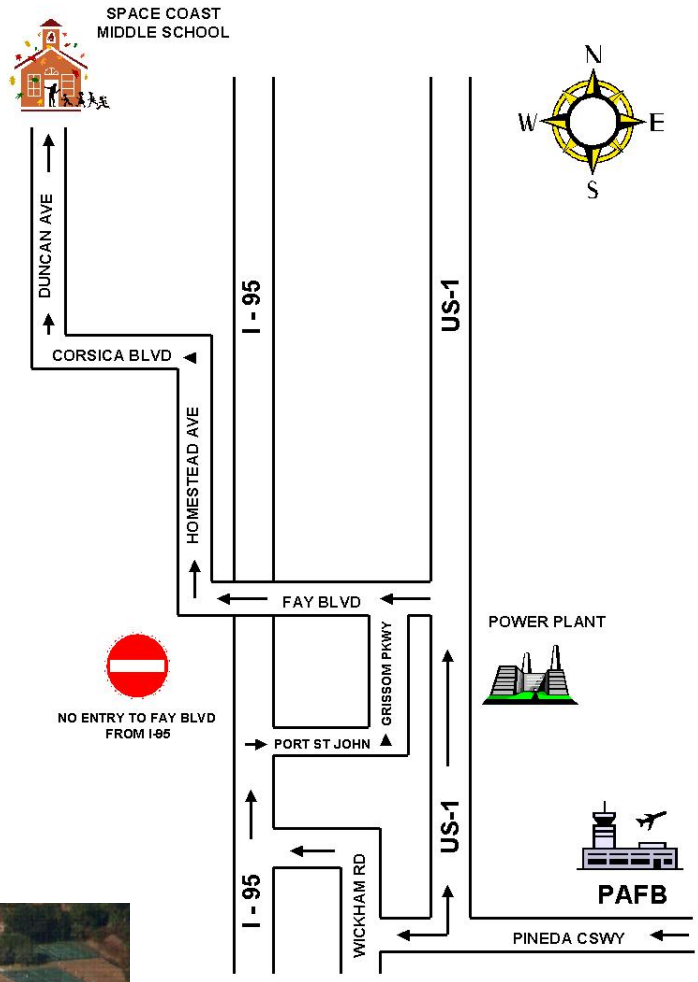
The Special Needs registration request form can be found at:
http://embrevard.com/documents/specialneeds/special_needs_shelter_application.pdf

For more information, call (321) 637-6670 or visit: http://embrevard.com/special_needs.cfm#00110000

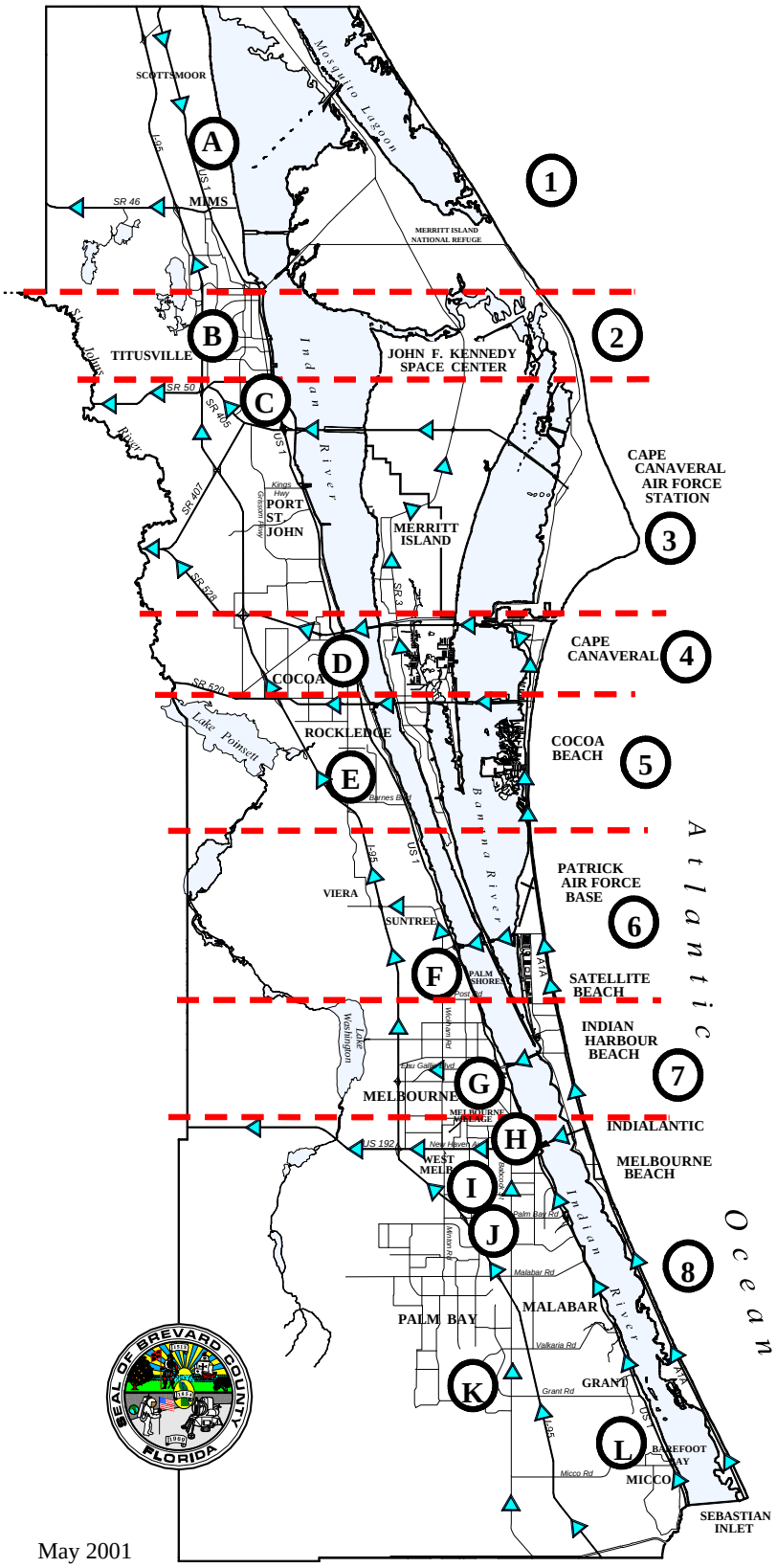
Evacuation Route to Space Coast Junior/Senior High School

ROUTE 1: Proceed west on Pineda Causeway (SR 404) to US 1 North. Travel 20.4 miles to Fay Boulevard and turn left (first light after power plant) on to Fay Boulevard. Go 3.6 miles and turn right on to Homestead Avenue (after I-95 overpass). Go to the fourth street and turn left onto Corsica Boulevard, then turn right on to Duncan Avenue. Space Coast Junior/Senior High School is straight ahead.

ROUTE 2: Proceed west on the Pineda Causeway (SR 404) to Wickham Road. Make a right on to Wickham Road to I-95 North. Take I-95 North to Exit # 208 Port St. John Parkway East. Proceed East on to Port St. John Parkway and make a left on to Grissom Boulevard North and make a left on to Fay Boulevard. Right turn on to Homestead Avenue then left on to Corsica and then right on to Duncan Avenue to Space Coast Junior/Senior High School.



Space Coast Junior/Senior High School



May 2001

County Hurricane Shelters/Evacuation Routes Map

BREVARD COUNTY PRIMARY EVACUATION SHELTERS	
Office: (321) 637-6670 **Web Page: www.embrevard.com** **Information Line During Disasters Only: (321) 637-6674**	
PRIMARY EVACUATION SHELTERS	
A.	PINEWOOD ELEMENTARY SCHOOL - 3654 Lionel Road, Mims
B.	APOLLO ELEMENTARY SCHOOL - 3085 Knox McRae Drive, Titusville
C.	IMPERIAL ESTATES ELEMENTARY SCHOOL - 5525 Kathy Drive, Titusville
D.	BREVARD COMMUNITY COLLEGE - Cocoa Campus – 1519 Clearlake Road, Cocoa
E.	ANDERSEN ELEMENTARY SCHOOL - 3011 South Fiske Boulevard, Rockledge
F.	BREVARD COMMUNITY COLLEGE - Melbourne Campus – 3865 North Wickham Road, Melbourne
G.	EAU GALLIE HIGH SCHOOL - 1400 Commodore Boulevard, Melbourne
H.	MELBOURNE HIGH SCHOOL - 74 Bulldog Boulevard, Melbourne
I.	CENTRAL MIDDLE SCHOOL - 2600 Wingate Boulevard, West Melbourne
J.	RIVIERA ELEMENTARY SCHOOL - 351 Riviera Drive NE, Palm Bay
K.	WESTSIDE ELEMENTARY SCHOOL - 2175 DeGroodt Road SW, Palm Bay
L.	BAREFOOT BAY COMMUNITY CENTER - Bldg. A, Barefoot Boulevard (Not a Shelter – (See # 9)
EVACUATION AND SHELTER ROUTES	
1.	Residents north of Garden St. to north County Line, evacuate west on SR 46, or shelter at Pinewood Elementary School.
2.	Residents from Garden St. to SR 50, evacuate to I-95, or west on SR 50, or shelter at Apollo Elementary School.
3.	Residents of North Merritt Island, Port St. John and South Titusville, evacuate west on SR 405 to SR 50, or shelter at Imperial Estates Elementary School on Kathy Dr. off Sisson Rd.
4.	Merritt Island, Beachside, and mainland residents north of SR 520, evacuate west on SR 528 (Beeline), or shelter at Brevard Community College, Cocoa.
5.	Residents north of Patrick AFB and Macaw Ln. on Merritt Island, evacuate west on SR 520, or shelter at Andersen Elementary School. Mainland residents use Barnes Blvd., Eyster Blvd., or Fiske Blvd. to evacuate to I-95, or shelter at Andersen Elementary School.
6.	Residents south of Patrick AFB to north limits of Indian Harbour Beach and south of Macaw Ln. on Merritt Island, evacuate west on Pineda Cswy. To Wickham Rd. then north to I-95, or shelter at BCC, Melbourne. Mainland residents north of Aurora Rd to Barnes Blvd., evacuate to I-95, or shelter at BCC, Melbourne.
7.	Residents from the north Indian Harbour Beach limits to the Indialantic north limits, evacuate west on SR 518 to I-95. Mainland residents from Aurora Rd. to US 192, evacuate west, or shelter at Eau Gallie High School, new wing.
8.	Residents from the north limits of Indialantic to the south County Line, evacuate to and west on US 192, or take Shelter Route north on Babcock St. to Melbourne High School, unless directed south on Babcock St. to Palm Bay Rd. and west to Riviera Dr. then south to Reviera Elementary School. Mainland residents south of US 192 evacuate west on US 192 or report to Riviera Elementary School. Mainland south county residents needing shelter, proceed west on Micco Rd., Grant Rd., or Valkaria Rd., to S. Babcock St., then to Cogan Dr. or Eldron Blvd., west to San Filippo Dr., then south and west to DeGroodt Rd. to Westside Elementary School. Residents of West Melbourne, Melbourne Village and NW Palm Bay needing shelter proceed to Minton Rd. and Wingate Blvd. and shelter at Central Middle School.
9.	Residents in the Barefoot Bay/South County area that do not have transportation, report to the Barefoot Bay Community Center for transportation to Westside Elementary School or other designated shelter.

Chapter 4 - Recovering from a Hurricane

Recovering from a hurricane, or any natural disaster, is usually a gradual process. Safety is a primary issue, as are mental and physical well-being. If assistance is available, knowing how to access it makes the process faster and less stressful. This section offers some general advice on steps to take after disaster strikes in order to begin getting your home, your community, and your life back to normal.

Ensure your safety
Find out how to care for your safety after a disaster
Your first concern after a disaster is your family's health and safety. You need to consider possible safety issues and monitor family health and well-being.

Aiding the Injured
Check for injuries. Do not attempt to move seriously injured persons unless they are in immediate danger of death or further injury. If you must move an unconscious person, first stabilize the neck and back, then call for help immediately.

- If the victim is not breathing, carefully position the victim for artificial respiration, clear the airway, and commence mouth-to-mouth resuscitation.
- Maintain body temperature with blankets. Be sure the victim does not become overheated.
- Never try to feed liquids to an unconscious person.

Health

- Be aware of exhaustion. Don't try to do too much at once. Set priorities and pace yourself. Get enough rest.
- Drink plenty of clean water. Eat well. Wear sturdy work boots and gloves.
- Wash your hands thoroughly with soap and clean water often when working in debris.

Safety Issues

- Be aware of new safety issues created by the disaster. Watch for washed out roads, contaminated buildings, contaminated water, gas leaks, broken glass, damaged electrical wiring, and slippery floors.
- Inform local authorities about health and safety issues, including chemical spills, downed power lines, washed out roads, smoldering insulation, and dead animals.

Returning Home

General Tips
Returning home can be both physically and mentally challenging. Above all, use caution.
Check for injuries. Do not attempt to move seriously injured persons unless they are in immediate danger of death or further injury. If you must move an unconscious person, first stabilize the neck and back, then call for help immediately.

- Keep a battery-powered radio with you so you can listen for emergency updates and news reports.
- Use a battery-powered flash light to inspect a damaged home.
  Note: The flashlight should be turned on outside before entering - the battery may produce a spark that could ignite leaking gas, if present.
- Watch out for animals, especially poisonous snakes. Use a stick to poke through debris.
- Be wary of wildlife and other animals
- Use the phone only to report life-threatening emergencies.
- Stay off the streets. If you must go out, watch for fallen objects; downed electrical wires; and weakened walls, bridges, roads, and sidewalks.

Before You Enter Your Home
Walk carefully around the outside and check for loose power lines, gas leaks, and structural damage. If you have any doubts about safety, have your residence inspected by a qualified building inspector or structural engineer before entering.

Do not enter if:

- You smell gas.
- Floodwaters remain around the building.
- Your home was damaged by fire and the authorities have not declared it safe.

Going Inside Your Home

When you go inside your home, there are certain things you should and should not do. Enter the home carefully and check for damage. Be aware of loose boards and slippery floors. The following items are other things to check inside your home:

- **Natural gas.** If you smell gas or hear a hissing or blowing sound, open a window and leave immediately. Turn off the main gas valve from the outside, if you can. Call the gas company from a neighbor's residence. If you shut off the gas supply at the main valve, you will need a professional to turn it back on. Do not smoke or use oil, gas lanterns, candles, or torches for lighting inside a damaged home until you are sure there is no leaking gas or other flammable materials present.
- **Sparks, broken or frayed wires.** Check the electrical system unless you are wet, standing in water, or unsure of your safety. If possible, turn off the electricity at the main fuse box or circuit breaker. If the situation is unsafe, leave the building and call for help. Do not turn on the lights until you are sure they're safe to use. You may want to have an electrician inspect your wiring.
- **Roof, foundation, and chimney cracks.** If it looks like the building may collapse, leave immediately.
- **Appliances.** If appliances are wet, turn off the electricity at the main fuse box or circuit breaker. Then, unplug appliances and let them dry out. Have appliances checked by a professional before using them again. Also, have the electrical system checked by an electrician before turning the power back on.
- **Water and sewage systems.** If pipes are damaged, turn off the main water valve. Check with local authorities before using any water; the water could be contaminated. Pump out wells and have the water tested by authorities before drinking. Do not flush toilets until you know that sewage lines are intact.
- **Food and other supplies.** Throw out all food and other supplies that you suspect may have become contaminated or come in to contact with floodwater. Your basement. If your basement has flooded, pump it out gradually (about one third of the water per day) to avoid damage. The walls may collapse and the floor may buckle if the basement is pumped out while the surrounding ground is still waterlogged.
- **Open cabinets.** Be alert for objects that may fall.
- **Clean up household chemical spills.** Disinfect items that may have been contaminated by raw sewage, bacteria, or chemicals. Also clean salvageable items.
- **Call your insurance agent.** Take pictures of damages. Keep good records of repair and cleaning costs.

Tips for Filing an Insurance Claim

If possible, photograph the outside of the premises, showing the any damage or flooding. Also, photograph the inside of the premises, showing the damaged property and the height of the water if your property was flooded.

Call your insurance agent to report your claim. If you have separate flood insurance, also call your flood insurance agent to report your claim. Your flood insurance agent will prepare a Notice of Loss form and an adjuster will be assigned to assist you.

Separate the damaged from the undamaged property and put it in the best possible order for the insurance adjuster's examination. If reasonably possible, protect the property from further damage.

When the adjuster visits your property, let him or her know if you need an advance or partial payment of loss. Again, good records can assist your insurance companies and the NFIP in giving you an advance payment. Use your inventory to work with the adjuster in presenting your claim.

Damaged property which presents a health hazard or which may hamper local clean-up operations should be disposed of. Be sure to adequately describe discarded items so that, when the adjuster examines your losses and your records, these article are included in the documentation.

Good records speed up settlement of your claim. Compile a room-by-room inventory of missing or damaged goods, and include manufacturer's names, dates and places of purchases, and prices. Try to locate receipts or proofs of purchase, especially for major appliances, and note manufacturers' names, serial numbers, prices, and dates of purchase.

Is Disaster Help Available if I Have Insurance?

Possibly. If you have not already contacted your insurance agent to file a claim, please do this as soon as possible. Failure to file a claim with your insurance company may affect your eligibility for assistance. After filing a claim, if any of the following situations occur FEMA may be able to provide some assistance:

- **Your insurance settlement is delayed.** Delayed means a decision on your insurance settlement has been delayed longer than 30-days from the time you filed the claim. If a decision on your insurance settlement has been delayed, you will need to write a letter to FEMA explaining the circumstance. You should include documentation from the insurance company proving that you filed the claim. If you filed your claim over the telephone, you should include the claim number, date when you applied, and the estimated time of how long it will take to receive your settlement. Any help awarded to you by FEMA would be considered an advance and must be repaid to FEMA once an insurance settlement is received.
- **Your insurance settlement is insufficient to meet your disaster-related needs.** If you have received the maximum settlement from your insurance and still have an unmet disaster-related need, you will need to write a letter to FEMA indicating the unmet disaster-related need. You will also need to send in documentation from your insurance company for review.
- **You have exhausted the Additional Living Expenses (ALE) provided by your insurance company.** If you have received the maximum settlement from your insurance for Additional Living Expenses (Loss of Use) and still need help with your disaster-related temporary housing need, write a letter to FEMA indicating why you continue to have a temporary housing need. You will also need to provide documentation to prove use of ALE from insurance, and a permanent housing plan.
- **You are unable to locate rental resources in your area.** The FEMA Helpline has a list of rental resources in the disaster area. If no resources are available in your county, then the Helpline agent can provide you with resources in an adjacent county.
- You have up to twelve (12) months from the date you registered with FEMA to submit your insurance information for review. By law, we cannot provide money to individuals or households for losses that are covered by insurance.

Seeking Disaster Assistance

Throughout the recovery period, it is important to monitor local radio or television reports and other media sources for information about where to get emergency housing, food, first aid, clothing, and financial assistance. The following section provides general information about the kinds of assistance that may be available.

Direct Assistance

Direct assistance to individuals and families may come from any number of organizations, including:

- American Red Cross
- Salvation Army
- Other volunteer organizations

These organizations provide food, shelter, supplies and assist in clean-up efforts. Listen to local radio stations for the location of the nearest distribution point. Expect long lines at all of these locations as many folks will not have adequately prepared for the effects of the storm.

The Federal Role

In the most severe disasters, the federal government is also called in to help individuals and families with temporary housing, counseling (for post-disaster trauma), low-interest loans and grants, and other assistance. The federal government also has programs that help small businesses and farmers.

Most federal assistance becomes available when the President of the United States declares a “Major Disaster” for the affected area at the request of a state governor. FEMA will provide information through the media and community outreach about federal assistance and how to apply.

Coping with Disaster

The emotional toll that disaster brings can sometimes be even more devastating than the financial strains of damage and loss of home, business, or personal property.

Understand Disaster Events

- Everyone who sees or experiences a disaster is affected by it in some way.
- It is normal to feel anxious about your own safety and that of your family and close friends.
- Profound sadness, grief, and anger are normal reactions to an abnormal event.
- Acknowledging your feelings helps you recover.
- Focusing on your strengths and abilities helps you heal.
- Accepting help from community programs and resources is healthy.
- Everyone has different needs and different ways of coping.
- It is common to want to strike back at people who have caused great pain.

Children and older adults are of special concern in the aftermath of disasters. Even individuals who experience a disaster "second hand" through exposure to extensive media coverage can be affected. Contact local faith-based organizations, voluntary agencies, or professional counselors for counseling. Additionally, FEMA and state and local governments of the affected area may provide crisis counseling assistance.

Recognize Signs of Disaster Related Stress

When adults have the following signs, they might need crisis counseling or stress management assistance:

- Difficulty communicating thoughts.
- Difficulty sleeping.
- Difficulty maintaining balance in their lives.
- Low threshold of frustration.
- Increased use of drugs/alcohol.
- Limited attention span.
- Poor work performance.
- Headaches/stomach problems.
- Tunnel vision/muffled hearing.
- Colds or flu-like symptoms.
- Disorientation or confusion.
- Difficulty concentrating.
- Reluctance to leave home.
- Depression, sadness.
- Feelings of hopelessness.
- Mood-swings and easy bouts of crying.
- Overwhelming guilt and self-doubt.
- Fear of crowds, strangers, or being alone.

Easing Disaster-Related Stress

The following are ways to ease disaster-related stress:

- Talk with someone about your feelings - anger, sorrow, and other emotions - even though it may be difficult.
- Seek help from professional counselors who deal with post-disaster stress.
- Do not hold yourself responsible for the disastrous event or be frustrated because you feel you cannot help directly in the rescue work.
- Take steps to promote your own physical and emotional healing by healthy eating, rest, exercise, relaxation, and meditation.
- Maintain a normal family and daily routine, limiting demanding responsibilities on yourself and your family.
- Spend time with family and friends.
- Participate in memorials.
- Use existing support groups of family, friends, and religious institutions.
- Ensure you are ready for future events by restocking your disaster supplies kits and updating your family disaster plan. Doing these positive actions can be comforting.

Helping Children Cope with Disaster

Disasters can leave children feeling frightened, confused, and insecure. Whether a child has personally experienced trauma, has merely seen the event on television, or has heard it discussed by adults, it is important for parents and teachers to be informed and ready to help if reactions to stress begin to occur.

Children may respond to disaster by demonstrating fears, sadness, or behavioral problems. Younger children may return to earlier behavior patterns, such as bedwetting, sleep problems, and separation anxiety. Older children may also display anger, aggression, school problems, or withdrawal. Some children who have only indirect contact with the disaster but witness it on television may develop distress.

Who is at Risk?
For many children, reactions to disasters are brief and represent normal reactions to "abnormal events." A smaller number of children can be at risk for more enduring psychological distress as a function of three major risk factors:

- Direct exposure to the disaster, such as being evacuated, observing injuries or death of others, or experiencing injury along with fearing one's life is in danger.
- Loss/grief: This relates to the death or serious injury of family or friends.
- On-going stress from the secondary effects of disaster, such as temporarily living elsewhere, loss of friends and social networks, loss of personal property, parental unemployment, and costs incurred during recovery to return the family to pre-disaster life and living conditions.

What Creates Vulnerabilities in Children?
In most cases, depending on the risk factors above, distressing responses are temporary. In the absence of severe threat to life, injury, loss of loved ones, or secondary problems such as loss of home, moves, etc., symptoms usually diminish over time. For those that were directly exposed to the disaster, reminders of the disaster such as high winds, smoke, cloudy skies, sirens, or other reminders of the disaster may cause upsetting feelings to return. Having a prior history of some type of traumatic event or severe stress may contribute to these feelings.

The way children cope with a disaster or emergencies is often tied to the way parents cope. They can detect adults' fears and sadness. Parents and adults can make disasters less traumatic for children by taking steps to manage their own feelings and plans for coping. Parents are almost always the best source of support for children in disasters. One way to establish a sense of control and to build confidence in children before a disaster is to engage and involve them in preparing a family disaster plan. After a disaster, children can contribute to a family recovery plan.

A Child's Reaction to Disaster by Age
Below are common reactions in children after a disaster or traumatic event.

- **Birth through 2 years**
  When children are pre-verbal and experience a trauma, they do not have the words to describe the event or their feelings. However, they can retain memories of particular sights, sounds, or smells. Infants may react to trauma by being irritable, crying more than usual, or wanting to be held and cuddled. The biggest influence on children of this age is how their parents cope. As children get older, their play may involve acting out elements of the traumatic event that occurred several years in the past and was seemingly forgotten.

- **Preschool - 3 through 6 years**
  Preschool children often feel helpless and powerless in the face of an overwhelming event. Because of their age and small size, they lack the ability to protect themselves or others. As a result, they feel intense fear and insecurity about being separated from caregivers. Preschoolers cannot grasp the concept of permanent loss. They can see consequences as being reversible or permanent. In the weeks following a traumatic event, preschoolers' play activities may reenact the incident or the disaster over and over again.

- **School age - 7 through 10 years**
  The school-age child has the ability to understand the permanence of loss. Some children become intensely preoccupied with the details of a traumatic event and want to talk about it continually. This preoccupation can interfere with the child's concentration at school and academic performance may decline. At school, children may hear inaccurate information from peers. They may display a wide range of reactions—sadness, generalized fear, or specific fears of the disaster happening again, guilt over action or inaction during the disaster, anger that the event was not prevented, or fantasies of playing rescuer.

- **Pre-adolescence to adolescence - 11 through 18 years**
  As children grow older, they develop a more sophisticated understanding of the disaster event. Their responses are more similar to adults. Teenagers may become involved in dangerous, risk-taking behaviors, such as reckless driving, or alcohol or drug use. Others can become fearful of leaving home and avoid previous levels of activities. Much of adolescence is focused on moving out into the world. After a trauma, the view of the world can seem more dangerous and unsafe. A teenager may feel overwhelmed by intense emotions and yet feel unable to discuss them with others.

Meeting the Child's Emotional Needs
Children's reactions are influenced by the behavior, thoughts, and feelings of adults. Adults should encourage children and adolescents to share their thoughts and feelings about the incident. Clarify misunderstandings about risk and danger by listening to children's concerns and answering questions. Maintain a sense of calm by validating children's concerns and perceptions and with discussion of concrete plans for safety.

Listen to what the child is saying. If a young child is asking questions about the event, answer them simply without the elaboration needed for an older child or adult. Some children are comforted by knowing more or less information than others; decide what level of information your particular child needs. If a child has difficulty expressing feelings, allow the child to draw a picture or tell a story of what happened.

Try to understand what is causing anxieties and fears. Be aware that following a disaster, children are most afraid that:
- The event will happen again.
- Someone close to them will be killed or injured.
- They will be left alone or separated from the family.

Reassuring Children After a Disaster
Suggestions to help reassure children include the following:
- Personal contact is reassuring. Hug and touch your children.
- Calmly provide factual information about the recent disaster and current plans for insuring their safety along with recovery plans.
- Encourage your children to talk about their feelings.
- Spend extra time with your children such as at bedtime.
- Re-establish your daily routine for work, school, play, meals, and rest.
- Involve your children by giving them specific chores to help them feel they are helping to restore family and community life.
- Praise and recognize responsible behavior.
- Understand that your children will have a range of reactions to disasters.
- Encourage your children to help update your a family disaster plan.

If you have tried to create a reassuring environment by following the steps above, but your child continues to exhibit stress, if the reactions worsen over time, or if they cause interference with daily behavior at school, at home, or with other relationships, it may be appropriate to talk to a professional. You can get professional help from the child's primary care physician, a mental health provider specializing in children's needs, or a member of the clergy.

Monitor and Limit Your Family's Exposure to the Media
News coverage related to a disaster may elicit fear and confusion and arouse anxiety in children. This is particularly true for large-scale disasters or a terrorist event where significant property damage and loss of life has occurred. Particularly for younger children, repeated images of an event may cause them to believe the event is recurring over and over.

If parents allow children to watch television or use the Internet where images or news about the disaster are shown, parents should be with them to encourage communication and provide explanations. This may also include parent's monitoring and appropriately limiting their own exposure to anxiety-provoking information.

Use Support Networks

Parents help their children when they take steps to understand and manage their own feelings and ways of coping. They can do this by building and using social support systems of family, friends, community organizations and agencies, faith-based institutions, or other resources that work for that family. Parents can build their own unique social support systems so that in an emergency situation or when a disaster strikes, they can be supported and helped to manage their reactions. As a result, parents will be more available to their children and better able to support them. Parents are almost always the best source of support for children in difficult times. But to support their children, parents need to attend to their own needs and have a plan for their own support.

Preparing for disaster helps everyone in the family accept the fact that disasters do happen, and provides an opportunity to identify and collect the resources needed to meet basic needs after disaster. Preparation helps; when people feel prepared, they cope better and so do children.

Helping Others

The compassion and generosity of the American people is never more evident than after a disaster. People want to help. Here are some general guidelines on helping others after a disaster:

- **Volunteer!** Check with local organizations or listen to local news reports for information about where volunteers are needed. Note: Until volunteers are specifically requested, stay away from disaster areas.
- **Bring your own food, water, and emergency supplies to a disaster area if you are needed there.** This is especially important in cases where a large area has been affected and emergency items are in short supply.
- **Give a check or money order to a recognized disaster relief organization.** These groups are organized to process checks, purchase what is needed, and get it to the people who need it most.
- **Do not drop off food, clothing, or any other item to a government agency or disaster relief organization unless a particular item has been requested.** Normally, these organizations do not have the resources to sort through the donated items.
- **Donate a quantity of a given item or class of items (such as nonperishable food) rather than a mix of different items.** Determine where your donation is going, how it's going to get there, who is going to unload it, and how it is going to be distributed. Without sufficient planning, much needed supplies will be left unused.

Chapter 5 - A VICTIM'S LEGAL GUIDE TO HURRICANE PREPAREDNESS

This information will greatly assist you in the claims process. Minimizing your property loss may depend on your ability to quickly and accurately file your claim.

Planning
It is imperative that significant preplanning occurs for hurricane season. Planning and being prepared for a hurricane are important factors that increase your chances of being fully compensated for your property loss. Securing important paperwork and legal documents, keeping both a written and photographic inventory and saving receipts for large purchases will make the claims process much easier.

First, prior to evacuating, you must ensure that you have your military ID cards, your dependents' ID cards and any other type of identification cards that you might need during evacuation, such as your driver's license, Tri-care cards, or credit cards.

You should also have a complete inventory of all of your household items. It is a good idea to have a photographic inventory of these items. You can keep these inventories in a three-ring binder or photo album and stored with other important documents for easy access. These inventories provide documentation and proof of ownership in the event you file a claim. For example, if you file a claim for a television or a stereo, which was destroyed during a hurricane, and no proof of purchase is available, a family Christmas picture with the television in the background is often sufficient proof of ownership.

Understanding the Military Claims Process
The Personnel Claims Act authorizes compensation for personal property damage or loss, to include food spoilage, which is caused by a hurricane.

A claim will be allowed only for the amount and quantity of personal property considered reasonable or useful under the attendant circumstances, incident to service or employment. Personal property includes tangible property that is owned by the claimants or their immediate family members. It also includes borrowed property if the claimant borrowed the property for his/her use or the use of his/her immediate family. Personal property includes, but is not limited to, household goods, unaccompanied baggage, privately owned vehicles and mobile homes.

The Personnel Claims Act applies to losses incurred at a member's home on base. Additionally, claims are paid for losses incurred in "quarters" and in "other authorized places."

"Quarters" include the following:
- Housing the government assigns or otherwise provides in kind to the claimant, including substandard housing and trailers.
- Privately owned mobile or manufactured homes parked on base in spaces the government provides.
- Transient housing accommodations, wherever located, such as hotels, motels, guesthouses, transient dormitories, or other lodgings the government furnishes or contracts for.
- Garages, carports, driveways, and parking lots assigned to quarters for the occupants of the quarters to use.
- Street Parking
- In the immediate vicinity of quarters or in the area immediately, adjacent to quarters when used for storage of items not commonly stored in living areas. For example: boats, motorcycles, motorbikes, bicycles, lawn mowers, garden equipment, and outdoor furniture.

Authorized places include:
- Any place authorized or apparently authorized by the government to receive, hold, or store personal property, such as offices, warehouse, baggage holding areas, and hospitals.
- Any area on a military installation designated for parking or storing vehicles.
- A recreation area or any real estate the Air Force or any other DOD element uses or controls.

The Personnel Claims Act does not apply to a member's home off base. Personal insurance is necessary for protection. Keep in mind, the Government is not an insurer of property. Payments under the Personnel Claims Act are generally limited to the fair market value of items damaged or destroyed and, consequently, claimants will ordinarily be compensated only for the depreciated value of such items. If you really want to be protected against property loss, you need to have full replacement cost insurance.

Typically, the maximum amount payable by the Government for a claim is $40,000. However, if the claim arose from an emergency evacuation or from extraordinary circumstances, the amount settled and paid may exceed $40,000, but may not exceed $100,000. A claim allowed under this exception might be paid in money or in kind replacement.

A settlement authority may make a partial payment in advance of final settlement when a claimant experiences personal hardship due to extensive property damage or loss.

When to File
You have two years from the date of incident to file your claim. The claim must be received in a claims office by the two-year date. A postmark within the two-year statute does not satisfy this requirement. Prompt filing of claims is highly recommended since it is much easier to verify your claim if you file quickly.

Who May File a Claim?
Proper claimants are:
- Active duty military personnel.
- Civilian employees of the Air Force who are paid from appropriated funds
- DOD school teachers and school administrative personnel who are provided logistic and administrative support by an Air Force installation commander.
- Air Force Reserve/Air National Guard personnel when performing active duty, full time National Guard duty, or inactive duty training.
- Retired or separated Air Force military personnel who suffer damage or loss resulting from the last storage or movement of personal property, or for claims accruing before retirement or separation.
- AFROTC cadets while on active duty for summer training.

False Claims
It is a crime to willfully make a false, fictitious, or fraudulent claim. Section 287 of title 18, United States Code, provides for a maximum fine of $10,000.00 or imprisonment for five years, or both.

Substantiation
The Personnel Claims Act requires substantiation of claims. Normally, this means the claimant must show both that a loss occurred and the value of that loss. Documentary evidence such as purchase receipts, prior appraisals, copies of canceled checks, credit card owner's manuals or photographs showing the type or value of the property damaged or lost should be included with your claim. Photographs of damaged items can also be submitted to show the extent of damage. The claims office may wish to inspect all items being claimed. Do not clean, repair or dispose of any items without approval from the claims office.

Information and Assistance to Claimants
Claims personnel are available to furnish advice as to the evidence required to justify your claim. The burden of gathering the documents and completing the claim forms is the responsibility of the claimant or his agent. If you have any questions, contact the Claims Office at 321-494-7357.

Additional Information

Informational Resources
For more in-depth information, please contact your unit Emergency Management (EM) representative, 45 SW Office of Emergency Management (OEM), local National Weather Service office, or local American Red Cross chapter. Additional information, brochures, or materials about disaster safety can be obtained through the websites identified in Attachment 1.

Hurricane Information Links On The World Wide Web

National Hurricane Center Real-Time Forecasts

National Hurricane Center Tropical Prediction Center	http://www.nhc.noaa.gov/

Satellite Imagery

NOAA Geostationary Satellite Server	http://www.goes.noaa.gov/

FEMA, NWS, and other Disaster Organization Links

American Red Cross	http://www.redcross.org/
Federal Emergency Management Agency (FEMA)	http://www.fema.gov/
FEMA Emergency Management Institute	http://training.fema.gov/
National Weather Service (NWS)	http://www.nws.noaa.gov http://www.nhc.noaa.gov/HAW2/english/surge/slosh.shtml
NWS Southern Region Offices	http://www.nhc.noaa.gov/aboutnws.html#SOUTH
Florida Department of Emergency Management	http://www.floridadisaster.org/
Brevard County Emergency Management	http://embrevard.com/

Local Emergency Relief Animal Shelters

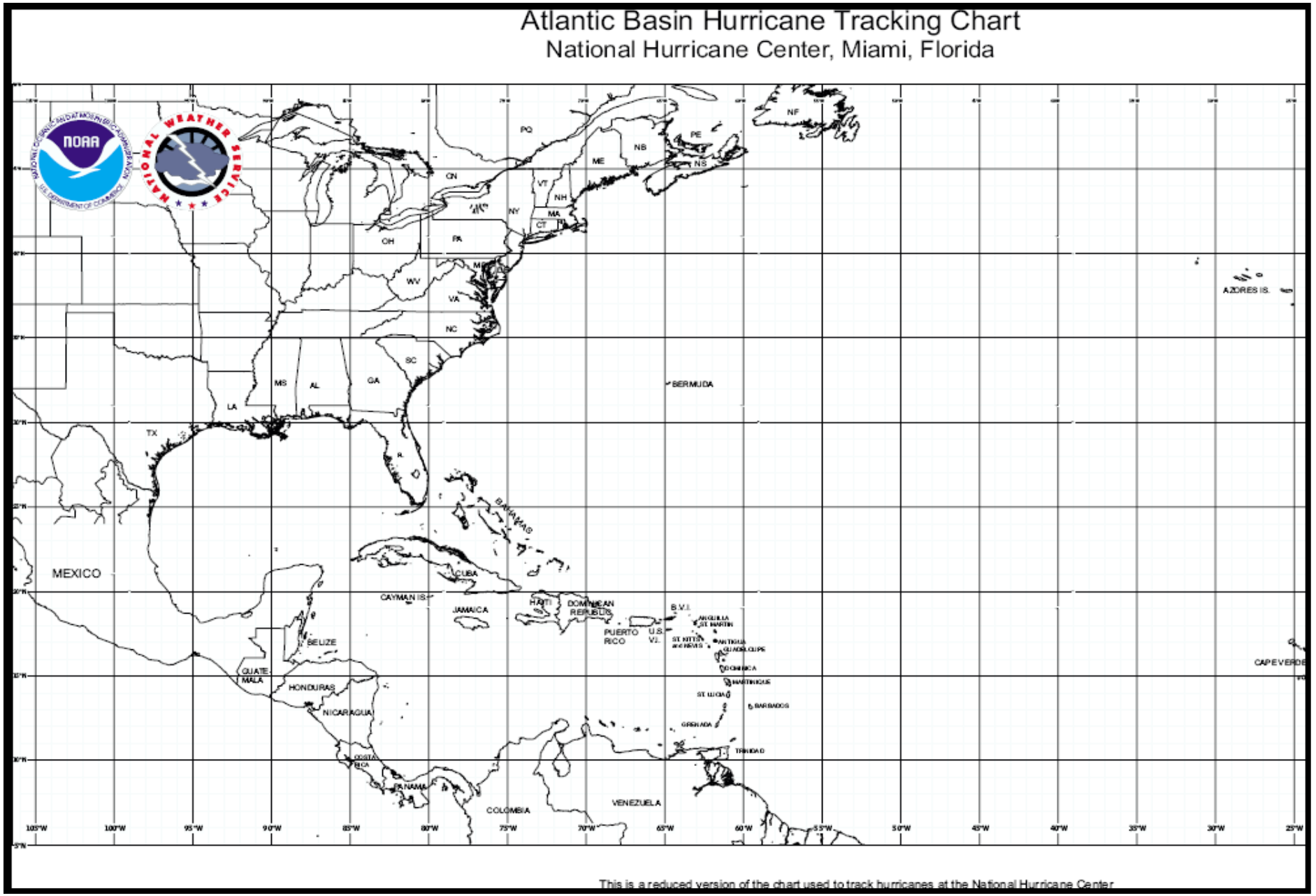
All county Animal Shelters will be open, unless ordered evacuated, and will receive pets on an Emergency basis. Call the following numbers for information concerning pet sheltering during a disaster:

North Area Animal Center	Titusville	(321) 264-5119
Society for the Prevention of Cruelty to Animals	Titusville	(321) 267-8221
Central Brevard Humane Society	Cocoa	(321) 636-3343
Humane Society South Branch	Melbourne	(321) 253-6608

In the event that all shelters are full, the Melbourne Greyhound Park at 1100 N. Wickham Road Melbourne, has volunteered its facility as a Temporary Disaster Relief Shelter for Pets of people in the evacuation areas only.

It is very important to bring current rabies certificates, medications, and food.

PET FRIENDLY SHELTER PROGRAM
Call outreach offices at (321) 633-2024 or online at http://www.brevardanimalservices.com


Atlantic Basin Hurricane Tracking Chart
National Hurricane Center, Miami, Florida
NOAA
NATIONAL WEATHER SERVICE
PQ
NF
NB
PE
NS
ME
GN
VT
NH
NY
MA
CT
OH
PA
MD
WV
VA
NC
SC
MS
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GA
LA
TX
BERMUDA
AZORES IS.
BAHAMAS
MEXICO
CUBA
CAYMAN IS.
JAMAICA
HAITI
DOMINICAN REPUBLIC
PUERTO RICO
U.S. V.I.
B.V.I.
ANGUILLA
ST MARTIN
ANTIGUA
GUADELOUPE
DOMINICA
MARTINIQUE
ST LUCIA
BARBADOS
GRENADA
TRINIDAD
BELIZE
GUATE-MALA
HONDURAS
NICARAGUA
COSTA RICA
PANAMA
COLOMBIA
VENEZUELA
CAPE VERDE
105°W
100°W
95°W
90°W
85°W
80°W
75°W
70°W
65°W
60°W
55°W
50°W
45°W
40°W
35°W
30°W
25°W
This is a reduced version of the chart used to track hurricanes at the National Hurricane Center